May 29, 1915.

DRAWING

80

A careful search has been made this day for the original drawing or a photolithographic copy of the same, for the purpose of reproducing the said drawing to form a part of this book, but at this time nothing can be found from which a reproduction can be made.

Finis D. Morris,
Chief of Division E.

AWK.

UNITED STATES PATENT OFFICE.

WILLIAM WOODWORTH, OF NEW YORK, N. Y.

MACHINE FOR REDUCING AND PLANING BOARDS FOR FLOORING, CEILINGS, &c.

Specification of Letters Patent No. 80, dated November 15, 1836.

To all whom it may concern:

Be it known that I, WILLIAM WOODWORTH, of the city of New York and county and State of New York, have invented a new and useful machine for reducing to an equal thickness and smoothing one or both sides of boards or planks for ceilings and floorings or any other purpose and for jointing and grooving the same at one operation, called "Woodworth's Reducing and Smoothing Plane Machine"; and I do hereby declare that the following is a full and exact description.

To enable others skilled in the art to use my invention I will proceed to describe its construction, and operation.

This machine consists of a series of rollers, made of iron, or any other convenient material attached to a frame by pairs, one above the other, horizontally, and at right angles with the bed pieces of the frame, and a sufficient number, at proper distances to forward the board or plank, between the rollers when put in motion past all the reducing, and smoothing operation.

The board or plank is entered between the rollers, and conducted by them to a series of circular saws attached to a horizontal shaft revolving with great velocity directly under the board or plank, and against its forwarding motion. The board or plank receives a pressure from weighted levers under the bottom rollers which press the board, or plank upward against a platform or bed or rollers directly over the circular saws beneath, and the board or plank will be reduced to any given thickness required. In lieu of saw plates, a cylinder if preferred may be made with steel teeth attached to it one forward of the other, and diverging one from the other. Its width or thickness forming a continued spiral-row of teeth to any length of cylinder required for reducing the board or plank to an equal thickness. After passing the reducing saws, it comes in contact with the tonguing and grooving saws. On one revolving vertical shaft are three horizontal circular saws; the middle one larger than the other two; the one cuts the groove, the other two straightens, and faces the edge. Directly opposite, and parallel is another shaft fitted in slides to accommodate a plank or board of any width, with three more saws attached to it, two of them for cutting the rabbets, and one smaller for reducing the tongue, which is made to fit the groove on the opposite side of the board or plank. After leaving the grooving or tonguing saws, it is moved forward with a more rapid motion either by a continuation of rollers or any known forwarding motion with velocity as may be required over a reverted-smoothing plane, with one or more smoothing cutters either single or double which gives the board or plank a smooth even finish. The pressure is downward by weighted levers or springs on the top rollers, the smoothing-plane stock forms the bed for the board or plank to pass over. The stock may be made of cast iron or some other strong, and smooth material.

The frame to which the different parts of the machinery are attached consists of two parallel bed-pieces of wood or other material well supported by a sufficient number of legs, according to the length of frame required. These beds are firmly framed together by cross pieces or ties, and substantially bolted, the journals of the rollers resting on boxes attached to the frame. The sawing or reducing cylinder revolves in friction rollers or boxes attached to the frame. The plates of the circular saw may be thick leaving a space between the saws twice the thickness of the saw plate, which may be filled with wood or other substance.

Any number of saws may be put on the shaft required by the width to be reduced. The teeth may be set to cut treble the thickness of the plate by leaving every third tooth in a line with the plate, and the other two set in a direction diverging from each other the thickness of the plate; so that if the plate be one-fourth of an inch thick the edge or cut of the saw will be three-fourths of an inch. The diameter of the saw may be large or small. The teeth may be cut in the ordinary method or they may be attached to a plate or cylinder of sufficient strength. The size now made use of is from seven to eight inches diameter which I consider about a medium size. The velocity given is such that the board or plank is reduced to equal thickness with great rapidity, and exactness. The smoothing or finishing tools have very little labor to perform, having no shavings or dust on the top of the board or plank to impede its motion they being cast downward by the board or plank moving over the reducing saw, and smoothing plane. Another reducing and smoothing apparatus may be placed over

the board or plank so as to finish and dress both sides at one operation if necessary, they may all be used at the same time, or separately at pleasure.

The roller saw, and other parts of the machinery are put in motion by pulleys, and bands, or wheels or any motion that will give sufficient velocity.

What I claim as my invention, and desire to secure by Letters Patent is—

The application and combination of circular saws forming a reducing cylinder in connection, and combination with the smoothing plane apparatus by rollers, wheels, and bands. Circular saws, and smoothing planes are tools in common use; circular saws attached to shafts for tonguing and grooving have been used by the Shakers many years; shafts, rollers, connecting-wheels, pulleys, and bands also are in general use for forwarding motion for propelling iron, board, timber, &c., all which are not claimed as new.

WILLIAM WOODWORTH.

Witnesses:
THOMAS M. THOMAS,
LEONARD PROCTOR.